Australian Government
Australian Transport Safety Bureau

Mid-air collision involving a Cessna 152, VH-TNV and a Jabiru J160, 19-4430

Tyabb aerodrome, Victoria, 10 November 2013

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Addendum

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Mid-air collision involving a Cessna 152, VH-TNV and a Jabiru J160, 19-4430

What happened

Damage to 19-4430

Source: Owner

On 10 November 2013, at about 1125 Eastern Daylight-savings Time,[1] a flight instructor and student pilot of a Cessna 152 aircraft, registered VH-TNV (TNV), were conducting circuits at Tyabb aerodrome, Victoria.

At about the same time, the pilot of a Jabiru J160 aircraft, registered 19-4430 (Jabiru), taxied for a local flight with one passenger on board. The pilot broadcast a taxi call on the common traffic advisory frequency (CTAF) and commenced taxiing to the runway 17 holding point. The pilot stopped the aircraft short of the marked holding point and turned at an angle to maximise his view of the base and final legs of the circuit (Figure 1).

As the Jabiru neared the holding point, another aircraft landed on the grass runway. The pilot of the Jabiru waited until that aircraft taxied clear of the flight strip.

The pilot of TNV reported that, when on a closer downwind leg than normal, in line with the runway 17 threshold, he reduced the engine power to idle and commenced a glide approach. He broadcast that TNV was turning base for a glide approach and commenced a continuous turn towards runway 17.

The pilot of the Jabiru heard the broadcast and looked for TNV where he would expect an aircraft turning base to be, but was unable to sight the aircraft. He reported that he assumed TNV was difficult to see as it would have been about 1 NM away. From his experience, he expected to have a few minutes to line up and take off. He then broadcast that he was lining up and rolling on runway 17, and commenced the take-off run.

At about the same time, the pilot of TNV reported that he was on a high, close final, had sighted the Jabiru at the holding point, and reported broadcasting on the CTAF that he was turning final. Neither pilot heard the other pilot's broadcast and both reported that they may have transmitted their calls simultaneously.

The student pilot of TNV continued the glide approach, aiming to touchdown about half way along the runway.

The pilot of the Jabiru rotated the aircraft at a speed of about 60 kt, and about 160 m along the runway. As the aircraft became airborne, at about 15 ft above ground level (AGL), the pilot saw the underside of TNV appear from above and fill the windscreen. TNV appeared to be overtaking the Jabiru very slowly and still descending. The pilot of the Jabiru pushed the control stick forward and reduced the power to idle. However this caused the Jabiru to accelerate towards TNV resulting in TNV and the Jabiru colliding with the elevator trim tab of TNV making contact with the fin of the Jabiru. The pilot of the Jabiru reported that the wheels of TNV appeared to be either side of his cockpit, with the front wheel just clear of the Jabiru's propeller blades.

[1] Eastern Daylight-savings Time (EDT) was Coordinated Universal Time (UTC) + 11 hours.

The pilot of the Jabiru forced the aircraft onto the ground and it skidded along the runway. The pilot reported that TNV appeared to continue flying about 3 ft above the ground and then gradually climb away.

At the same time, the pilot of TNV reported hearing a loud bang behind him, but did not see the Jabiru. He took control of the aircraft from the student and commenced a go-around. He reported that, as the aircraft required full back pressure on the control column and full back trim to climb, he elected to level out at about 700 ft AGL. He conducted a low level circuit and returned for landing. The pilot also reported hearing a broadcast on the CTAF advising that there was an aircraft to the side of the runway and he assumed that it was the Jabiru that TNV had collided with.

The Jabiru was substantially damaged and TNV sustained damage to the right elevator and trim tab.

Pilot comments (Jabiru)

The pilot provided the following comments:

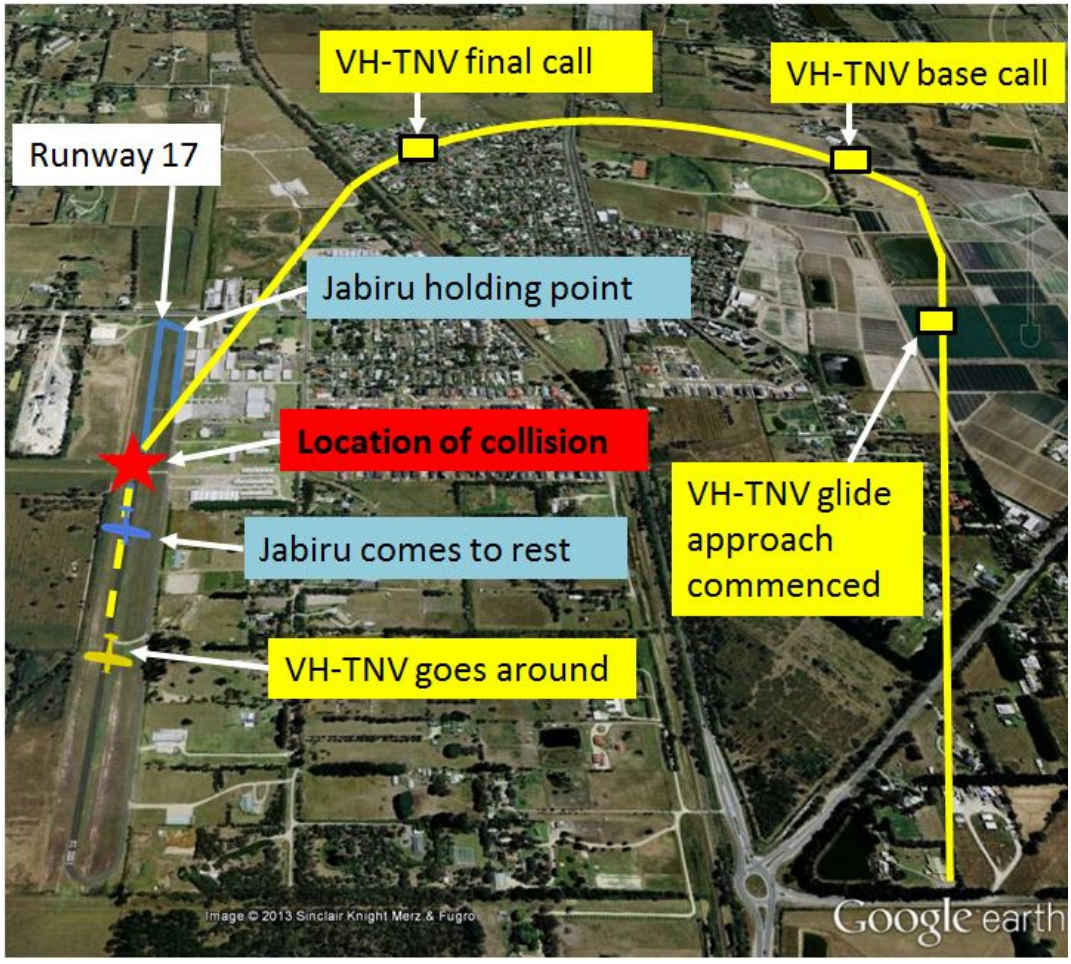
- He looked for TNV when he heard the pilot broadcast a call turning base, but was unable to identify the aircraft. The broadcast created an expectation that TNV was at a particular place in the circuit, but at that time TNV was behind him, at an oblique angle, and closer than expected.
- As he believed that TNV was a couple of minutes away from landing, he commenced his take-off.
- He was aware of two aircraft conducting circuits, another that had just landed, an aircraft inbound to the aerodrome, and a fifth aircraft that was departing the area.
- As it was an event day at the aerodrome, he suggested that if a briefing had been conducted with all pilots prior to commencing flying operations at the aerodrome for the day, it may have assisted in alerting pilots to the increased traffic volume and the importance of flying standard circuit patterns.
- Aircraft are permitted to fly at Tyabb without a radio, increasing the need for pilots to be able to sight other aircraft.

Pilot comments (VH-TNV)

The pilot provided the following comments:

- After broadcasting a turning final call, he focused his attention on the aircraft's airspeed and the landing aim point.
- When on the base leg, and having sighted the Jabiru at the holding point, he assumed that the pilot would hold until TNV had landed.
- TNV was at about 200 ft AGL when lined up on the runway centreline.
- The marked holding point faces west and in a high wing aircraft like the Jabiru, the pilot is unable to see aircraft on final from that position. The operator of TNV reminds their pilots to stop prior to the holding point for better visibility of aircraft on final for runway 17.
- There have been other occurrences at Tyabb where an aircraft has entered the runway with another aircraft on final and that pilot has had to conduct a go-around.
- He was aware of one other aircraft in the circuit and the Jabiru on the ground. He did not hear the taxi or lining up and rolling broadcast from the pilot of the Jabiru, or any other broadcasts until he was in the go-around.

Figure 1: Approximate location of aircraft and radio broadcasts



Source: Google earth and pilot recollections

Safety message

The ATSB SafetyWatch highlights the broad safety concerns that come out of our investigation findings and from the occurrence data reported to us by industry. One of the safety concerns is safety around non-towered aerodromes www.atsb.gov.au/safetywatch/safety-around-aeros.aspx.

As detailed in the booklet *A pilot's guide to staying safe in the vicinity of non-towered aerodromes*, available at www.atsb.gov.au/publications/2008/ar-2008-044(1).aspx, ATSB research found that, between 2003 and 2008, there were 709 airspace-related events at, or in the vicinity of non-towered aerodromes. This included 60 serious incidents and six accidents (mid-air and ground collisions). Most of the 60 serious incidents were near mid-air collisions. The report also found that there were 31 occurrences where an aircraft commenced the take-off at the same time as another aircraft was on short final or rolling out after landing.

The risk of runway incursions and other reduced separation events can be minimised through good communication by pilots. Most importantly, a good visual lookout should be maintained when in the circuit for aircraft that could be manoeuvring on the ground. Pilots on the ground should be vigilant when taxiing or entering a runway. Pilots are reminded to keep a good lookout for aircraft on approach, listen to the CTAF for other pilot's intentions, and build a good awareness of the traffic in the circuit.

The need for good communication and maintaining a good lookout are even more important when conducting non-standard or modified circuits.

General details

Occurrence details

Date and time:	10 November 2013 – 1130 EDT	
Occurrence category:	Accident	
Primary occurrence type:	Mid-air collision	
Location:	Tyabb aerodrome, Victoria	
	Latitude: 38° 16.00' S	Longitude: 145° 10.50' E

Aircraft details: VH-TNV

Manufacturer and model:	Cessna Aircraft Company 152	
Registration:	VH-TNV	
Serial number:	15281560	
Type of operation:	Flying training - dual	
Persons on board:	Crew – 2	Passengers – Nil
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Minor	

Aircraft details: 19-4430

Manufacturer and model:	Jabiru J160	
Registration:	19-4430	
Serial number:	Unknown	
Type of operation:	Private	
Persons on board:	Crew – 1	Passengers – 1
Injuries:	Crew – Nil	Passengers – Nil
Damage:	Substantial	

About the ATSB

The Australian Transport Safety Bureau (ATSB) is an independent Commonwealth Government statutory agency. The ATSB is governed by a Commission and is entirely separate from transport regulators, policy makers and service providers. The ATSB's function is to improve safety and public confidence in the aviation, marine and rail modes of transport through excellence in: independent investigation of transport accidents and other safety occurrences; safety data recording, analysis and research; and fostering safety awareness, knowledge and action.

The ATSB is responsible for investigating accidents and other transport safety matters involving civil aviation, marine and rail operations in Australia that fall within Commonwealth jurisdiction, as well as participating in overseas investigations involving Australian registered aircraft and ships. A primary concern is the safety of commercial transport, with particular regard to fare-paying passenger operations.

The ATSB performs its functions in accordance with the provisions of the *Transport Safety Investigation Act 2003* and Regulations and, where applicable, relevant international agreements.

The object of a safety investigation is to identify and reduce safety-related risk. ATSB investigations determine and communicate the safety factors related to the transport safety matter being investigated.

It is not a function of the ATSB to apportion blame or determine liability. At the same time, an investigation report must include factual material of sufficient weight to support the analysis and

findings. At all times the ATSB endeavours to balance the use of material that could imply adverse comment with the need to properly explain what happened, and why, in a fair and unbiased manner.

About this report

Decisions regarding whether to conduct an investigation, and the scope of an investigation, are based on many factors, including the level of safety benefit likely to be obtained from an investigation. For this occurrence, a limited-scope, fact-gathering investigation was conducted in order to produce a short summary report, and allow for greater industry awareness of potential safety issues and possible safety actions.